

Remarks / Arguments

Inventorship and Common Ownership – 37 CFR 1.56

The Applicant respectfully advises that the entire subject matter of the present application including all claims that have been and are presently pending was commonly owned at all times by Thoughtslinger Corporation, which employs both inventors named in the application. An assignment from both of the inventors to Thoughtslinger Corporation has been filed with the USPTO and is recorded at reel/frame number 012111/0482.

Substantive Objections/Rejections

The Applicant has amended claims 41-50, 53-55, 60-66 and 75-77.

The Applicant has cancelled claims 56 and 67-74, without prejudice.

Claims 75-77, which previously depended from claim 67 have been modified and now depend from claim 41, through some intervening claims.

New dependent claims 78 to 83 are further described below.

Amended claim 41 relates to a method of simultaneous multi-user document editing by a plurality of users including a first user and a second user. The document includes primary data.

According to the method of claim 41, the primary data is divided into three or more mutually exclusive sections, including a first section and a last section.

Each of the sections is stored in a separate primary container. Each of the primary containers is a sibling container and the primary containers are part of a master document tree data structure that is stored in a file system accessible to a server. The primary container in which the first section is stored is designated a head primary

container. The primary container in which the last section is stored is designated a tail primary container. The master document tree data structure also includes a parent container.

The primary containers are linked together to form a linked list in which the order of the primary containers corresponds to the order of the sections in the document. The head primary container is at the head of the linked list and the tail primary container is at the tail of the linked list.

The parent container includes a link to the head primary container and to the tail container. –The parent container does not include a direct link to the other primary containers in the linked list.

A copy of at least part of the master document tree is transmitted to a first client operated by the first user. A copy of at least part of the master document tree is transmitted to a second client operated by a second user.

A first lock request is received from the first client and the first lock request identifies a first group of primary containers corresponding to a first part of the document.

If the first user is permitted to lock each of the containers in the first group of primary containers, then first group of containers are locked and identified as being locked for the first user. A first confirm lock message is sent to the first client

A first update message is transmitted to the second client and indicates that each primary container in the first group of primary containers has been locked.

A first post request is received from the first client. The first post request stores a modified version of the first part of the document. The master document tree data structure is amended in accordance with the first post request.

A second update message is sent to the second client and stores the modified version of the first part of the document.

The method of claim 41 allows a first user to lock a portion of a document, while a second client is informed about the locked portion. The first user subsequently posts a modified version of the first part of the document. The master document tree data structure is updated in accordance with the post request and the second client is informed about the modified version of the first part of the document.

In the master document tree data structure, the document is stored in three or more containers that are arranged in a linked list. The parent container contains links to the head and tail primary containers, but does not include a direct link to any containers in the linked list between the head and tail primary containers.

The Examiner rejected claim 41 as previously on file as obvious in light of Bray and Devanbu. Reference is made to Figure 3 of Bray. Bray stores different sections of a document in a hierarchical tree structure. Referring to column 5, lines 4-32, Bray indicates that his authoring system and his tree structure are based on XML. Bray states "An XML document or fragment of a document will have a single "root" entity that is the parent of all of the underlying subtree. A single node can have many children but a node can have only one parent." (lines 9-12) Bray does not describe or suggest the use of a linked list of containers to represent the order of sections of a document. Furthermore, in Bray's hierarchical tree data structure, the parent node for a document contains a direct link to its child nodes. The child nodes are not linked to one another and are not linked into a linked list. Thus any information relating to the ordering of sections of a document must be recorded in the parent container. As a result, to navigate from one section of a document to an adjacent section of the document, Bray requires information stored in the parent container.

In contrast, in the method of claim 41 as amended, the primary containers in which adjacent sections of the document are stored are linked together in a linked list that corresponds to the order of the sections in the document. The parent container does not contain a link to primary containers between the head and tail primary containers. Such a link is not required because the document can be navigated based on the linked list arrangement of the sibling primary containers in which the sections of the document are stored. As a result, it is possible to navigate between the adjacent sections using only the information in the corresponding primary containers. This is simply impossible with the hierarchical tree structure used by Bray.

Devanbu does not describe a tree data structure for storing sections of a document. Accordingly, Devanbu cannot be combined with Bray to provide a tree structure in which sections of a document are stored in a linked list of primary containers in which the order of the primary containers represents the order of the sections in the document and in which the parent container of the primary containers does not contain a direct link to the primary containers between head and tail primary containers in the linked list.

Accordingly, the Applicant submits that claim 41, as amended, is patentable over Bray in combination with Devanbu.

Step (k)(iv) has been amended to indicate that the first post request stores a modified version of the first part of the document. The modified version of the document may include a new version of the first part of the document and this is claimed in new claim 78. One or more sections may have been deleted in the modified version of the first part of the document. This is claimed in claim 79 and is supported in the description as filed at paragraph 423.

Claims 42-55 and 57-59 are dependent on claim 41. Claims 42-49, 50, 53, 55 have been amended to be consistent with claim 41, as amended.

Claim 47 has been amended to be dependent on new claim 78.

Claim 60 is dependent on claim 41. According to the method of claim 60, summary information is stored in the parent container. A second lock request is received from the second client and identifies the parent container. If the second user is permitted to lock the parent container, then the parent container is locked (step q(i)). A confirm lock message is transmitted to the second client. A third update message is transmitted to the first client indicating that the parent container has been locked. A second post request is received from the second client and contains modified summary information. The master document tree is modified in accordance with the second post request. A fourth update message is transmitted to the first client and includes a modified version of the parent container. The modified version of the first part of the document (see claim 41, step (k)) includes at least one new section. Step q(i) occurs before k(iv).

According to the method of claim 60, a first user can lock a first part of the document that contains one or more sections of the document. The first user then adds at least one new section to the first part of the document. Simultaneously, the second user can lock the parent container and edit the summary information.

As noted above, in Bray's tree structure, the parent node must have a link to each of its child nodes. If a new section is added to the document, the parent must be amended to include a link to the corresponding new child node. As a result, Bray does not permit one user to add a new section to a document while another user has a lock on the parent node. See Bray at column 8, lines 1-60. Barlow does not teach a document tree data structure and does not permit one user to add new sections to a document while a parent container that contains summary information is locked and edited by another user. Accordingly, Bray and Barlow cannot be combined to provide the method of claim 60.

Claims 61 to 66 have been amended to be consistent with claim 41 and 60.

With respect to claim 66, the Examiner made reference to Madduri. Madduri describes an access control program in which a list of users along with their privileges is maintained. Madduri's system appears to be directed to restricting access to entire data objects or documents (see column 3, lines 28-34 and column 4, lines 1-4). Accordingly, Madduri does not require or teach the use of a document tree or the division of a document into sections. Madduri does not describe storing a unique user handle for a user in a container (or a document) along with privilege levels for the user to control access to other contents of the container (or the document) (see column 4, lines 5-14). Accordingly, Bray, Devanbu and Madduri cannot be combined to provide the method of claim 66. In any case, claim 66 includes the limitations of claims 41 and 60 and is patentable for the reasons set out above.

Claims 75-77 have been amended to be dependent on claim 60 and to consistent with claim 60.

New claim 80 is dependent on claim 41. Claim 80 adds the limitation of recording a link to the parent container in each of the primary containers in the linked list of sibling containers. This is supported in the description at paragraph 69 by reference to the "container_parent" field of the Container class 300 and in Figure 5. See also paragraph 126, which describes container 424. Container 424 contains a link to its parent container 404. However, container 404 does not contain a link to container 424 (see paragraph 113-114).

New claim 81 is dependent on claim 44 and adds the limitation that the first and second groups of primary containers are mutually exclusive. If the second user is permitted to lock each container in the second group of containers, then step p(i) occurs before step k(iv) and the first and second user are able to simultaneously edit mutually exclusive parts of the document. This supported in the application at paragraphs 381 to 384 and more generally the surrounding paragraphs from paragraph 371 to 390.

New claim 82 is dependent on claim 60 and adds the further limitations that each user is assigned a unique user handle. The unique user handle is recorded in the parent container along with any restrictions on the user's permission to access the summary information. In step (p) of claim 60, the second user's privilege level is used to determine whether the second user can lock the parent container. This supported in the description at paragraph 191.

Conclusion

In view of the foregoing comments, it is respectfully submitted that the application is now in condition for allowance. If the Examiner has any further concerns regarding the language of the claims or the applicability of the prior art, the Examiner is respectfully requested to contact the undersigned at 416-957-1630.

Respectfully submitted,

Richard Walker et al.

A handwritten signature in black ink, appearing to read 'Bhupinder Randhawa', with a long horizontal flourish extending to the right.

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